Producer gas is constituted, as already frequently remarked, of a mixture of steam-air gas and distillation gas. Now, as the distillation gases are of very different composition, and also can be developed in different periods of working in very varying amounts, it appears really useless to want to find out a mean composition of producer gas. But, of course, thereby there is attained what relative ratio the distillation gas mainly has to the steam-air gas, since if relatively only very little distillation gas, as opposed to steam-air gas, is formed, so the influence of the distillation gas would come very little into play. Further, it would admit of one conceiving it possible to enable one to find out a construction of producer which will fulfil the task of producing a gas of the greatest possible uniformity of composition, and one in which devices ensure that fuel is brought continuously and in small, always uniform, amounts into the producer, as, for example, already takes place in the Morgan producer. For this case, then, the theoretically best uniform gas quality can well be discussed, and this also ascertained for a specified fuel. In most cases, a special class of fuel, usually designated gas coal, is employed in producers for open-hearth furnaces. They always contain a large amount (27 to 36 per cent.) of volatile constituents, and yield a gas rich in hydrocarbons and tarry vapours, which, on combustion, make the flame luminous. This is regarded as advantageous by many practical men (whether rightly remains undecided) in that such luminous flame may develop considerably more heating power than the pure carbonic acid flame.

Such like coal is employed in the manufacture of illuminating gas, and here the amount of distillation gas which can be obtained from a stated quantity of coal has been ascertained.